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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,950	11/27/2000	Richard E. Smalley	11321-P002D1	5035

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ROSS SPENCER GARSSON  
WINSTEAD SECHREST & MINICK P.C.  
P. O. BOX 50784  
DALLAS, TX 75201

EXAMINER
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COLE, ELIZABETH M

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/722,950

Applicant(s)

SMALLEY ET AL.

Examiner

Elizabeth M. Cole

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 35-44, 46, 47, 50 and 51 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 35-44, 46, 47, 50 and 51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date 20060607.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

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1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/30/06 has been entered.
2. The incorporation of essential material in the specification by reference to an unpublished U.S. application, foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference, if the material is relied upon to overcome any objection, rejection, or other requirement imposed by the Office. The amendment must be accompanied by a statement executed by the applicant, or a practitioner representing the applicant, stating that the material being inserted is the material previously incorporated by reference and that the amendment contains no new matter. 37 CFR 1.57(f). The specification incorporates by reference "Science of Fullerenes and Carbon Nanotubes" to provide support for the particular nomenclature used. Since this is essential subject matter which is necessary to understand the claimed invention it cannot be incorporated by reference to a publication.
3. Claims 35-44, 46-47, 50-51 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application

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was filed, had possession of the claimed invention. The claims recite that they are (10,10) carbon nanotubes, but the specification incorporates the essential subject matter necessary to understand this limitation by reference to a publication. Therefore, the specification does not describe the claimed subject matter.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35-44, 46-47, 50-51 are rejected under 35 U.S.C. 103(a) as obvious over "Growth morphologies during cobalt-catalyzed single-shell carbon nanotube synthesis" in view of "Collapse and Growth" Nature May 6, 1993, 353, pages 14-15. "Growth morphologies" discloses a material which comprises all single wall carbon nanotubes wherein the nanotubes are in the form of web and/or strings which correspond to the claimed felt/mat and rope. See page 509, last three lines; page 515, first full paragraph. The nanotubes have diameters of about 1.2 –1.3 nm which corresponds to the claimed diameter of about 1.3 nanometers which corresponds to about 13 Angstroms.

"Growth morphologies" does not disclose the claimed number of nanotubes in the rope or the basis weight of the claimed felt. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to

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applicant as in *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP §§ 2112- 2112.02. Therefore, since “Growth Morphologies” appears to disclose the claimed ropes and mats/felts in the form of “strings” and “webs”, the burden is shifted to Applicant to show that the materials disclosed in “Growth Morphologies” are different from the claimed invention.

“Growth Morphologies” differs from the claimed invention because it does not disclose that the nanotubes at 10,10 nanotubes. Applicant has presented evidence that (10,10) nanotubes are not necessarily present in the claimed amount even if single wall nanotubes having the particularly claimed diameter are formed. The specification teaches that laser vaporization produces predominantly single wall (10,10) nanotubes. See page 7, line 19, through page 8, line 9. “Collapse and Growth” teaches in the first full paragraph of the second column of the article at page 14, that high yields are obtained with heated pulsed laser vaporization. Therefore, it would have been obvious to have formed the nanotubes taught by “Growth Morphologies” by the method of laser vaporization taught by “Collapse and Growth”, motivated by the expectation that this would produce high yields. Once the laser vaporization method was employed, the (10,10) carbon nanotubes would necessarily be present as the predominant nanotubes.

5. Applicant's arguments filed 6/30/06 have been fully considered but they are not persuasive. Applicant argues that “Growth Morphologies” does not disclose the claimed (10,10) nanotubes. This argument is moot in view of the new grounds of rejection.

6. The terminal disclaimers filed 6/30/06 are proper and have been accepted.

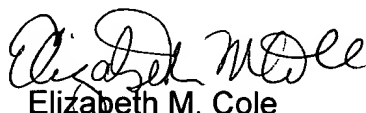
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (571) 272-1478.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (571) 273-8300.

  
Elizabeth M. Cole  
Primary Examiner  
Art Unit 1771

e.m.c